

White Paper

Summary of Idaho's Coldwater and Warmwater Temperature Standards

Nevada Division of Environmental Protection

April 2015

Introduction

Idaho has adopted a range of criteria for a variety of coldwater and warmwater uses (Table 1). According to the Idaho Department of Environmental Quality, the criteria for Cold Water, Salmonid Spawning and Warmwater are quite old and are based upon the 1977 EPA methodology document. The Seasonal Cold and Bull Trout are more recent (since 2000), however these criteria have yet to be approved by EPA. The following sections discuss these criteria in more detail.

Table 1. Idaho's Temperature Criteria

Metric	Warm water - ° C	Seasonal Cold - ° C	Cold Water - ° C	Salmonid Spawning - ° C	Bull Trout -- ° C		
					Idaho Regulations, Not EPA Approved		EPA Regulations
					Juvenile Rearing – Jun-Aug	Spawning – Sep-Oct	Spawning, Rearing – Jun-Sep
MDMT ¹	33	26	22	13	---	---	---
MWMT ²	---	---	---	---	13	---	10
MDAT ³	29	23	19	9	---	9	---

¹Maximum daily maximum temperature

²Maximum weekly maximum temperature – 7-day average of daily maximum temperatures

³Maximum daily average temperature

Cold Water, Salmonid Spawning and Warmwater Criteria

Idaho's coldwater, salmonid spawning and warmwater criteria have been in place since about the 1980s and are reportedly based upon 1977 EPA guidance. No technical supporting document has been identified so it is uncertain which fish species were the primary drivers for these criteria. Idaho did deviate from the 1977 guidance when MDAT (daily average) criteria were assigned, rather than MWAT (weekly average) criterion recommended by EPA. Also, Idaho did not establish any warmwater spawning criteria as recommended in the EPA guidance.

Idaho's regulations do not specify time periods when the Salmonid Spawning criteria are applicable but state:

The Department shall determine spawning periods on a waterbody specific basis taking into account knowledge of local fisheries biologists, published literature, records of the Idaho Department of Fish and Game, and other appropriate records of spawning and incubation, as further described in the current version of the Water Body Assessment Guidance published by the Idaho Department of Environmental Quality.

The Water Body Assessment Guidance document (2002, Idaho DEQ) provides a table summarizing core time periods when salmonid spawning and egg incubation commonly occur (Table 2). If more detailed information is needed when evaluating a particular water, the assessor is recommended to consider Appendix F in the Water Body Assessment Guidance which provides more detailed information. In this regard, Idaho takes a different approach than Nevada, in that the spawning period used in Idaho's assessment for a given water may be somewhat flexible. It should be noted that the time periods are different from those compiled by the State of Montana <http://deq.mt.gov/wqinfo/Standards/PDF/SpawningTimesFWP.pdf>.

Table 2. Common Core Periods of Spawning and Egg Incubation for Selected Coldwater Species in Idaho

Fish Species	Time Period
Brook trout	Oct 1 - June 1
Brown trout	Oct 1 – Apr 1
Bull trout	Sept 1 – Apr 1
Cutthroat trout	Apr 1 – Jul 1
Mountain whitefish	Oct 15 – Mar 15
Redband/rainbow trout	Mar 15 – July 15

Recently, Idaho identified the need to better establish when and where salmonid spawning occurs for use with the temperature criteria. In 2014, BioAnalysts, Inc. produced a document providing background information on the development of the geography and timing of salmonids. This document expands upon the information assembled in the Water Body Assessment Guidance (2002) and revises some of the spawning and egg incubation periods in Table 2. However, these revised dates would not be used in the assessment until they are incorporated into the Water Body Assessment Guidance.

Beginning in 2011, Idaho began working toward adoption of EPA Region 10 salmonid spawning criteria of 13° C (MWMT) in place of their current criteria of 13° C (MDMT) and 9° C (MDAT). However, Idaho has been informed that EPA could not approve the adoption of the EPA criteria unless Idaho specified where and when the criteria applied. Therefore, Idaho has undertaken a huge effort to identify where and when spawning of different species occur throughout the state. A series of GIS maps are being developed to characterizing spawning locations.

Seasonal Coldwater Criteria

Idaho recognized that there are other aquatic communities in the state in addition to just coldwater and warmwater communities. Therefore in 2000, Idaho adopted temperature criteria for waters with seasonal coldwater fisheries. Seasonal cold waters are to have “*water quality appropriate for the protection and maintenance of a viable aquatic life community of cool and coldwater species, where cold water aquatic life may be absent during, or tolerant of, seasonally warm temperatures.*” To assist in developing appropriate criteria, Idaho DEQ commissioned a study by BioAnalysts, Inc. The resulting recommendations were based upon a review of available data and literature.

While EPA has approved the use category of Seasonal Cold, they have not approved the numeric criteria. According to Idaho DEQ, one of EPA's concerns is that some seasonal cold waters may actually be cooler than the criteria. EPA believes that the resulting criteria could allow for warming to occur. Idaho and EPA have been at an impasse on this issue for over 10 years, and Idaho is not that interested in pursuing this further.

Bull Trout Criteria

In the late 1990s, both Idaho and EPA worked on developing appropriate temperature criteria for the protection of bull trout. In 1997, EPA issued a site-specific temperature rule (MWMT = 10 ° C, Jun-Sep) for waters in Idaho where bull trout spawn and juvenile bull trout rear (see 40 CFR 131.33). In developing these criteria, EPA opted to not follow their own 1977 Guidance and instead used more of a subjective approach, involving a review of the available information and inferred causal relationships between temperature and bull trout health. Following the EPA action, Idaho developed their own bull trout criteria (Table 1) based upon their review of the available information, including use of the 1977 EPA guidance. Idaho's criteria are less restrictive than the EPA regulations, and EPA has yet to approve Idaho's bull trout criteria for Clean Water Act purposes.

In 2003, EPA (Region 10) issued temperature recommendations for the protection of bull trout juvenile rearing that was 2° C degrees warmer (MWMT = 12° C) than the 1997 Rule. Again, these recommendations were not based upon some strict protocols such as the 1977 EPA guidance, but on a review of available information. Although Idaho has repeatedly requested that EPA revise their 1997 Rule criteria to be consistent with the 2003 recommendations, EPA has replied that there is no imperative for them to do so as the 1997 criteria is protective.

Impairment Assessments

For their Impaired Waters List (303(d)), Idaho considers temperature data in concert with biological condition as follows.

- Waters with poor biological condition or no biological data: any exceedance of the temperature criteria are considered a temperature impairment
- Waters with good biological condition: $\geq 10\%$ of days for periods of interest (Jun 21 – Sep 21 for coldwater; minimum of 45 day period during salmonid spawning) with exceedances are considered a temperature impairment

Air Temperature Exemption: Temperature criteria will not be considered exceeded when the air temperature of a given day exceeds the ninetieth percentile of a yearly series of weekly maximum air temperature calculated over the historic record measured at the nearest weather reporting station.

Conclusions

While Idaho has experienced some struggles with their temperature criteria, there are some things for us to learn from their efforts. For the general trout communities (rainbow, brown, brook, etc.), use of the 1977 EPA guidance appeared to have been successfully used. However, these standards were adopted many years ago and it is unknown if these same criteria would stand up to the scrutiny that Idaho has been

experiencing in recent years. For bull trout, it is most likely that we would need to rely on Region 10 guidance for those criteria. While Nevada has some waters that could probably qualify as seasonal coldwater fisheries, we would likely have challenges in trying to identify these waters and the appropriate temperature criteria.